

Instruction Manual

HI 983315-0
HI 983315-1
HI 98331500

Panel-Mounted TDS Indicators & Controllers



WARRANTY

These meters are warranted for two years against defects in workmanship and materials when used for their intended purpose and maintained according to instructions. **The probe is warranted for a period of six months.** This warranty is limited to repair or replacement free of charge.

Damages due to accident, misuse, tampering or lack of prescribed maintenance are not covered.

If service is required, contact the dealer from whom you purchased the instrument. If under warranty, report the model number, date of purchase, serial number and the nature of the failure. If the repair is not covered by the warranty, you will be notified of the charges incurred. If the instrument is to be returned to Hanna Instruments, first obtain a Returned Goods Authorization Number from the Customer Service department and then send it with shipment costs prepaid. When shipping any instrument, make sure it is properly packaged for complete protection.

To validate your warranty, fill out and return the enclosed warranty card within 14 days from the date of purchase.

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Hanna Instruments reserves the right to modify the design, construction and appearance of its products without advance notice.

Dear Customer,

Thank you for choosing a Hanna product. This manual will provide you with the necessary information for the correct operation of the meter. Please read it carefully before using the meter. If you need additional technical information, do not hesitate to e-mail us at tech@hannainst.com.

These instruments are in compliance with the CE directives.

PRELIMINARY EXAMINATION

Remove the instrument from the packing material and examine it carefully. If any damage has occurred during shipment, immediately notify your Dealer or the nearest Hanna Customer Service Center.

The meters are supplied with:

- Instruction manual;
- Mounting brackets.

Note: Conserve all packing material until the instrument has been observed to function correctly. Any defective item must be returned in its original packing.

GENERAL DESCRIPTION

HI983315-0, HI983315-1 and HI98331500 are conductivity indicators and controllers with a relay output designed for simplicity of use in a wide range of industrial applications.

HI98331500 is provided with a DC/DC converter which isolates the measure system from the external power supply. They are panel-mounted with membrane keypads on the front panel and an easy-to-read LCD display.

All the meters automatically compensate for temperature variations. The probe is easy to clean and requires little maintenance.

Measurements are highly accurate and the meters can be calibrated at one point.

Power supply, wiring and selection are made via the plug-in terminal blocks on the rear panel.

LED indicators on the front panel identify whether the controller is in set or reading mode; alarm led lights up when measurements are higher than selected setpoint value.

SPECIFICATIONS

Range	0.0 to 199.9 ppm
Resolution	0.1 ppm
Accuracy (@ 20°C)	±2% f.s.
Setpoint	Adjustable through multiturn trimmer
Alarm Condition	LED ON and alarm contact closed when measured TDS value is higher than setpoint
Alarm Output	2-contact relay, no fuse protected. 5A, 240 VAC, 30 VDC
Probe	HI 7634-00 EC/TDS probe
Temp. Compensation	Automatic from 5 to 50°C (41 to 122°F) with $\beta=2\%$
TDS Conversion Factor	0.5
Calibration	Manual, at one point through trimmer
Calibration Solution	HI 7033 (84 $\mu\text{S/cm}$)
Powersupply:	External
HI983315-0	12VDC
HI98331500	12VDC isolated inside with DC/DC converter
HI983315-1	115/230VAC; 50/60Hz
Dimensions	79 x 49 x 95 mm (3.1 x 1.9 x 3.7")
Weight:	
HI983315-0, HI98331500	140g (4.96oz)
HI983315-1	250g (8.85oz)

CE DECLARATION OF CONFORMITY

CE
DECLARATION OF CONFORMITY

We
Hanna Instruments Italia S.r.l.
via E. Fermi, 10
35030 Sarmeola di Rubano - PD
ITALY

herewith certify that the TDS controllers:
HI 983315-0, HI 983315-1 and HI 98331500

have been tested and found to be in compliance with EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC according to the following applicable normative:

EN 50082-1: Electromagnetic Compatibility - Generic Immunity Standard
IEC 61000-4-2: Electrostatic Discharge
IEC 61000-4-3: RF Radiated
IEC 61000-4-4: Fast Transient

EN 50081-1: Electromagnetic Compatibility - Generic Emission Standard
EN 55022: Radiated, Class B

EN 61010-1: Safety requirements for electrical equipment for measurement, control and laboratory use

Date of Issue: 27.06.2001

A. Marsilio - Technical Director
On behalf of
Hanna Instruments S.r.l.

Recommendations for Users

Before using these products, make sure that they are entirely suitable for the environment in which they are used. Operation of these instruments in residential areas could cause unacceptable interferences to radio and TV equipment. The metal band at the end of the probe is sensitive to electrostatic discharges. Avoid touching this metal band at all times. During operation, ESD wrist straps should be worn to avoid possible damage to the probe by electrostatic discharges. Any variation introduced by the user to the supplied equipment may degrade the instrument's EMC performance.

To avoid electrical shock, do not use these instruments when voltage at the measurement surface exceeds 24 VAC or 60 VDC. Use plastic beakers to minimize any EMC interferences.

To avoid damage or burns, do not perform any measurement in microwave ovens.



<http://www.hannainst.com>

FUNCTIONAL DESCRIPTION

FRONT PANEL

Keypad

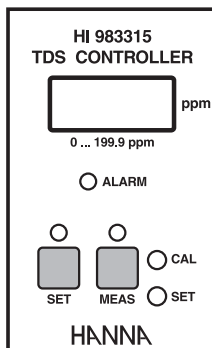
SET To display setpoint
MEAS To display measurement

Trimmers

CAL For calibration
SET To adjust setpoint

LEDs

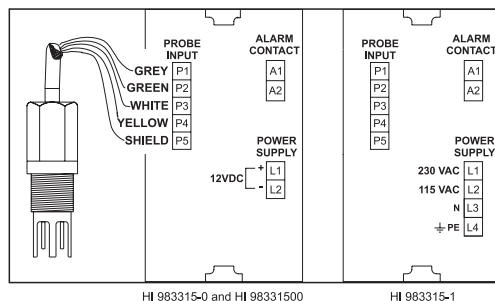
SET ON when the LCD displays set value
MEAS ON when the LCD displays measured value
ALARM ON when the alarm contact is closed



REAR PANEL

1. Power Supply:

HI 983315-0	HI 983315-1
HI 98331500	
12 VDC	115/230 VAC
L1: Positive	230 VAC
L2: Negative	115 VAC
L3: ---	Neutral
L4: ---	Protection Earth



Note: the power input is internally protected by a 400 mA fuse

2. **Alarm Contact:** A1, A2.

3. **Probe Connection:** follow the above diagram and connect the colored wires of probe cable as indicated. It is recommended to connect the shield (P5) to avoid any interference.

OPERATIONAL GUIDE

POWER CONNECTION

HI 983315-0 and HI 98331500

Connect a 2-wire power cable to the terminal strip while paying attention to the correct positive and negative polarities (12 VDC).

HI 983315-1

Connect a 3-wire power cable to the terminal strip while paying attention to the correct earth, neutral and line contacts (115/230 VAC).

ALARM CONTACT

Use this contact (maximum 5A, 240VAC, 30VDC) for connection to an alarm or dosing system. The unit acts as a switch to control an external device.

Notes:

- All external cables connected to the rear panel should end with wire lugs.
- It is recommended to cover the unused terminals with insulating tape.
- At start up the meter needs a few seconds to stabilize. Wait until a stable reading is displayed.

OPERATING THE METER

All operations can be controlled via front panel keys and trimmers.

“SET” and “MEAS” LEDs light up to indicate which is the operating function.

Make sure that the meter is calibrated and the Setpoint is properly selected before performing any measurement.

Attach the probe to the meter. Install the probe in the fittings or immerse it in the solution to be monitored, while making sure that metal pins are completely submerged. Press the “MEAS” key.

The LCD will show the TDS value of the solution in ppm unit. Any initial variation on readings may be due to temperature compensation.

The “ALARM” LED will light up when the alarm contact is closed, to indicate a TDS value higher than selected setpoint.

CALIBRATION

Make sure the meter is in the measurement mode (the “MEAS” LED lights on).

Immerse the probe in **HI 7033** (84 μ S/cm) calibration solution.

Shake briefly and wait for reading to stabilize.

Using a small screwdriver adjust the calibration trimmer until the meter displays “42” ppm.

SETPOINT

Press the “SET” key. The display will show the default or previously adjusted value for the setpoint.

Using a small screwdriver, adjust the “SET” trimmer until the required limit value is displayed.

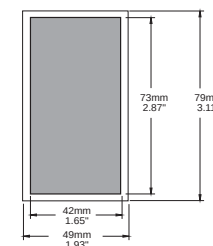
PROBE MAINTENANCE

To improve probe performance and prolong its life, it is recommended to clean it regularly.

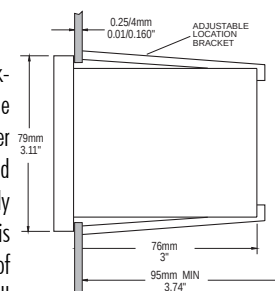
- Immerse the tip of the probe in **HI 7061** Cleaning Solution at least for one hour.
- If a more thorough cleaning is required, brush the metal pins with very fine sandpaper.
- After cleaning, rinse the probe with tap water and recalibrate the meter.
- When not in use, clean the probe before storing it.

HI983315 LAYOUT

Front view of the panel-mounted unit

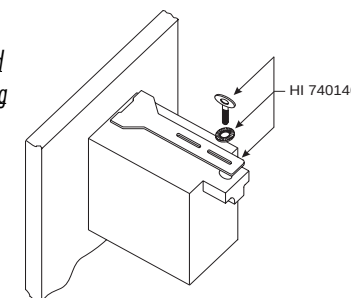


Side view of the panel-mounted unit



Adjustable location brackets (supplied with the meter) allow the controller to slide into the cutout and will hold the unit securely in place. 95 mm (3.74") is the minimum amount of space required to install the controller.

Panel-mounted unit assembling view



ACCESSORIES

HI 7634-00	EC/TDS probe
HI 70033P	84 μ S/cm Calibration solution, 20mL
HI 7033M	84 μ S/cm Calibration solution, 230mL
HI 7033L	84 μ S/cm Calibration solution, 460mL
HI 7061M	Electrode cleaning solution, 230 mL
HI 710005	12 VDC power adapter, US plug
HI 710006	12 VDC power adapter, European plug
HI 710012	12 VDC power adapter, Australian plug
HI 710013	12 VDC power adapter, South African plug
HI 710014	12 VDC power adapter, UK plug
HI 731326	CalibrationScrewdriver(20pcs)